A bibliometric analysis of doctoral dissertations in the subdiscipline of audiovisual translation

Abstract

This work analyses the evolution and current state of the art in audiovisual translation research as portrayed in doctoral dissertations worldwide, which is part of the studies I am conducting for my own PhD thesis at the University of Alicante, Spain. Audiovisual translation studies is still a very young subdiscipline of translation studies, and more research in this field is needed to describe and explain what its authors, institutions, journals, research groups and other actors have done so far, how and why.

In this connection, doctoral dissertations usually represent the most comprehensive, cutting-edge investigation projects that researchers face in their careers, and therefore their study brings about abundant information enabling us to provide a portrait of the subdiscipline. That information includes main topics and trends, academic networks of authors, gender differences between authors and supervisors, academic networks, most productive supervisors, universities and countries, most common languages, years of publication or access mode. All this data helps to analyse, delineate and categorise the subdiscipline of audiovisual translation.

Keywords: doctoral dissertations; PhD; bibliometrics; audiovisual translation; translation studies; network analysis; research

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1.   Introduction

Following a recent dramatic growth in the demand for audiovisual products, mainly for home entertainment, and the globalisation and *internetisation* of economies and markets, audiovisual translation (AVT) has become a crucial player in this game. Video-on-demand platforms such as Netflix, HBO, Amazon or Hulu, content producers and distributors are fighting to get as many customers as they can, which forces them to adapt their contents to many different languages using subtitles or dubbing. Fortunately, in terms of social inclusion, they are now also required by new regulations in more and more countries to facilitate accessibility in the form of captions for the deaf and hard of hearing (also used by foreign language students or users in noisy environments) or audio description for the blind or visually impaired. These and other topics such as surtitling, voice-over, respeaking or videogame translation are all included in AVT or, as it used to be called a few years ago, screen translation.

As a scientific field and a subdiscipline of translation studies (TS), AVT needs to be thoroughly analysed, delineated and categorised, and this has not been done so far. Some authors have already established the main guidelines to start doing meta-research on AVT publications (Chaume 2002, Franco & Orero 2005, Bogucki 2015, Martínez 2016), and others have done more general analyses about the whole TS discipline (Franco & Rovira-Esteva 2015, Dong & Chen 2015, Zhang et al. 2015) or about doctoral dissertations in other fields in a specific geographic area (Jones 2007), but no comprehensive, synchronic and diachronic study has covered all (or, at least, all reasonably accessible) AVT research publications yet. This is one of the aims of this study.

There are several methods to analyse what researchers do and how they do it in any specific field, but studying their publications (in all their forms) is the most feasible and reliable one. Among those research publications, doctoral dissertations or theses represent in most cases the most wide-ranging, cutting-edge, independent (not biased by publishers' restrictions) investigation projects that researchers face in their careers, making up a corpus liable to provide a very interesting picture of research trends throughout the relatively brief history of AVT studies.

Many scholars have long regarded doctoral dissertations as «non-conventional, semi-published literature», also called «grey literature», which is defined as «that which is produced on all levels of government, academics, business and industry in print and electronic formats, but which is not controlled by commercial publishers.» (Farace and Frantzen 2000). Indeed, in pre-internet times a doctoral dissertation was usually kept on shelves or microfilms and accessed only by librarians and onsite users unless that dissertation was later published as a book, something that was not usual at all. This basically prevented those documents from being cited or used in research. Fortunately,

this situation has changed over the last two decades with open access, scanning facilities and online electronic interlibrary loan.

The Budapest Open Access Initiative (2002) defined «open access» as

[…] free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited. (Budapest Open Access Initiative 2002)

On 23 October 2017, Cambridge University started its Open Access Week 2017[1] announcing the open-access availability of its prestigious former student Stephen Hawking's doctoral thesis (Hawking 1966), who said:

By making my PhD thesis open access, I hope to inspire people around the world to look up at the stars and not down at their feet; to wonder about our place in the universe and to try and make sense of the cosmos.

Anyone, anywhere in the world should have free, unhindered access to not just my research, but to the research of every great and inquiring mind across the spectrum of human understanding. (Kennedy 2017)

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[1] Available at http://www.openaccessweek.org/.

Arthur Smith, deputy head of scholarly communication at Cambridge University, said that «PhD theses contain a vast trove of untapped and unique information just waiting to be used, but which is often locked away from view and scrutiny» (Kennedy 2017). Thus, one of the aims of this study is to try to bring AVT PhD theses into «view and scrutiny», so that their relevance within AVT studies can be taken into consideration to describe the evolution and current status of the field.

In order to study AVT publications in general (and doctoral dissertations in particular), we need to go back to the 1960s and 1970s, when the first AVT research publications appeared, mainly addressing cinema translation for subtitling and dubbing, with authors such as Cary (1960), Caillé (1967), Dollerup (1974) or Fodor (1976). The earliest AVT-oriented doctoral dissertation that I have recorded is related to dubbing (Hesse-Quack 1967). Interestingly enough, after that one there is a series of theses dedicated to captions for the deaf (Fischer 1971, Davila 1972, Nix 1972), which at the time was not even considered part of audiovisual translation and is still much less pursued than dubbing or subtitling. Not surprisingly, Fischer (1971) virtually omits the analysis of previous literature stating that «a review of the relevant literature could have been […] very minimal, since so few reports have been made concerning media (especially films) for the deaf» (Fischer 1971: 5), and therefore even fewer concerning captions for the deaf.

The foundations for research on AVT were established a decade later (Titford 1982, Mayoral 1984, Mayoral, Kelly & Gallardo 1986), but only a couple of doctoral dissertations have been recorded for that period (Müller 1982, Machefer 1987), both related to dubbing and written in dubbing countries (Germany and France, respectively). In line with the rest of TS, the last decade of the 20th century and the beginning of the 21st century witnessed an exponential increase in AVT publications in general, and in

AVT dissertations in particular. Many of those dissertations even became milestones in this field after being published as books (Whitman-Linsen 1991, Zabalbeascoa 1993, Agost 1996, Díaz-Cintas 1997, Gottlieb 1997, Karamitroglou 1998, Chaume 2000).

2.   Objectives of the study

The main objective of this study is to analyse the evolution and current state of the art of doctoral dissertations in the subdiscipline of AVT, paying attention to a series of quantitative and qualitative variables, including year of publication (or archiving), type of doctoral dissertation, number of pages, access mode, gender of authors and supervisors, affiliation (university or other institution of origin) of authors and their supervisors, subjects (keywords), languages, countries, connections between authors and their supervisors and online presence of authors. Statistical quantification of these variables and their analysis should enable us to draw a map of this branch of the discipline through key issues such as schools, preferential objects of study, main centres of research or conceptual networks.

3.   Materials and methods

This study applies observational research as defined by Mellinger & Hanson (2017: 8): «Research that does not involve the direct manipulation of variables within a controlled setting and does not allow for random assignment of participants […].».

The population of the study is the complete set of doctoral dissertations on AVT subjects that I have been able to gather. There are obviously quite a few risks in any sampling task, prone to different types of bias, and I have tried to avoid the three types of error described by Mellinger & Hanson (2017: 10): coverage error (risk of not being able to include all theses or of incurring and not acknowledging a systematic selection

bias, for example from countries or universities with no formal repositories), sampling error (risk of choosing theses not belonging to AVT) and nonresponse error (risk of not receiving answers from authors). Regarding the ethics of data collection, no personal information is shown in this study.

3.1. Sources: databases, information extraction

From the very beginning of my PhD research it was obvious that the first and most important source of data for this study would be the database BITRA (Bibliography of Interpreting and Translation), because it is the most comprehensive database of publications about interpreting and translation in the world, outdoing other databases in volume, fields and flexibility of searches. With over 70,000 entries (journal articles, books, book chapters, etc.), including over 3,200 PhD theses and 4,000 documents on AVT as of November 2017, it allows searching in 15 languages, by fields such as subject, author, year, title, place, publisher/journal, language, type, ISBN, availability, table of contents, abstract, impact and others, and combining them via Boolean operators (OR, AND, NOT). Subjects (keywords) are organised in categories (theory, research, problem, genre, history, machine translation, documentation, teaching, profession, interpreting).

Figure 1. Example of an entry in BITRA.

Field	Value
Subject:	Audiovisual. Dubbing. Genre. Humour. Problem.
Author:	Zabalbeascoa Terran, Patrick
Year:	1993
Title:	Developing Translation Studies to Better Account for Audiovisual Texts & Other Forms of Text Production: with special attention to the TV3 version of Yes, Minister
Place:	Lérida http://hdl.handle.net/10803/8185
Publisher/Journal:	Universitat de Lleida
Language:	English
Type:	Dissertation
ISBN/ISSN/DOI:	ISBN: 9788469317778.
Availability:	Acceso abierto.
Abstract:	Although this work includes aspects of language, television and humour, it does not aim to make any major breakthroughs in these domains - if there are any novel insights in this respect then so much the better-. The main focus of attention of the dissertation -is translation, and the points to be discussed will be points to do with the theory and practice of translation. While recognizing the multidisciplinary nature of translation studies there is a very conscious effort here to isolate what is characteristic and unique to the domain of translation theory. What has made it possible for translators to do their job - quite satisfactorily in many cases - for centuries without the benefit of so many recent insights in linguistics and literary criticism. [Source: Author]
Impact:	1i- Chaume Varela, Frederic. 1997. 4231cit; 2i- Hatim, Basil & Ian Mason. 1997. 26cit; 3i- Chaume Varela, Frederic. 1999. 1185cit; 4i- Espasa Borràs, Eva. 2001. 49cit; 5i- Hurtado Albir, Amparo. 2001. 20cit; 6i- Chaume Varela, Frederic. 2002. 1184cit; 7i- Fuentes Luque, Adrián. 2003. 1438cit; 8i- Chaume Varela, Frederic. 2004. 1600cit; 9i- Bartrina, Francesca & Eva Espasa Borràs. 2005. 5914cit; 10i- Ruzicka Kenfel, Veljka (ed.) 2008. 40cit; 11i- Matamala Ripoll, Anna. 2010. 3223cit; 12i- Sepielak, Katarzyna & Anna Matamala Ripoll. 2014. 5919cit; 13i- Jiménez Carra, Maria Nieves. 2016. 7103cit

Source: BITRA (Bibliography of Interpreting and Translation).

In order to handle the huge volume of the database, I had to use a local copy, from where I extracted all the entries related to the subject «audiovisual» to create another specific database that I called BITRA-TAV (short for «traducción audiovisual» or AVT in Spanish). Additional searches on BITRA were necessary to include a few documents that had mistakenly not been labelled as audiovisual (and therefore not extracted). From then on, continuous updating has never stopped.

In that first compilation (December 2016), there were 117 PhD theses on AVT (of a total of 3,725 publications on AVT), and now, after receiving contributions from collaborators and scrutinising alternative sources such as web search engines (Google Scholar, Microsoft Academic) with search strings in many languages, online national

and international theses repositories (OATD, Ethos, Worldcat, Dialnet, TDX, Proquest, Teseo, DART), university databases, and even contacting authors and libraries via email, the number of PhD theses on AVT amounts to 330, which is almost three times the initial number.

I managed to automate some of the tasks involved in metadata extraction from HTML pages, parsing DC (Dublin Core)[2] metadata tags, and using the software EmEditor to create macros to convert those pages to XML, so they could be imported into BITRA-TAV.

Figure 2. Screenshot of an EmEditor macro created to convert from DC to XML.

Source: EmEditor, own screenshot.

Since this subdiscipline is constantly evolving and my own database is AVT-specific, I decided to introduce new subject tags to meet the specific needs of AVT publications, including «amateur», «animation», «audio description», «cinema», «documentary», «fiction», «television», «surtitles», «voice-over» or «respeaking».

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[2] According to its developers, «The Dublin Core Metadata Element Set is a vocabulary of fifteen properties for use in resource description. » < http://dublincore.org/documents/dces/ >

3.2. Data preparation: disambiguation, normalisation, cleaning

To do statistical calculations, data must be as clean and accurate as possible. Even though BITRA, and therefore BITRA-TAV, are manually and carefully updated and maintained and the number of format and content errors is very low, they needed to be checked and corrected.

BITRA is a document-oriented database, not a relational one, which means that entries are not fully related to each other and thus no deep statistical analysis on them is possible, so some data transformation was needed. After some testing, XML seemed to be the most suitable format (among those supported by this database) to export and import entries into other programmes (Microsoft Excel, SPSS, EmEditor…).

Another potential problem is the wrong assignment of authorship, which may occur if there are spelling errors, different versions or wrong ordering in names and/or surnames.

Name disambiguation, thus, becomes an essential task in bibliometrics, as it is the only way for authors to take credit for their work. There are several initiatives in place for name normalisation using unique identifiers for authors (ORCID, ResearcherID, Scopus Author Identifier), just as there are persistent identifiers for documents (DOI, handle), but none of them has had much success among humanities researchers yet, and this should be encouraged somehow.

In the case of this study, Microsoft Excel has proved sufficient to solve name duplication and other issues in other fields, using functions such as sorting cells and conditional formatting or just editing data manually. Those changes were then transferred to BITRA and BITRA-TAV.

For the sake of providing the fullest possible information, I decided to expand initials and include all surnames whenever possible —which I recommend for any

database or repository—, always trying to respect the author's preference. Any name (and gender) disambiguation issues, for example with initials, had to be checked and solved manually by searching on Google (and the very useful Google images), Google Scholar, university directories, online researcher databases, or by contacting libraries or even the authors themselves. Asian names are especially difficult to disambiguate when they are not shown in their original script or transliterated without any marks for the tones, because sometimes there may be literally thousands of people with the same combination of surname and name (e.g. «Zhu Zhu»). I decided not to include the age of the authors for the sake of brevity, but it would be interesting to add that information in future studies.

The final result (a full export of BITRA-TAV) was an Excel table with 331 rows and 70 columns (23,170 cells), on which most calculations are based.

3.3.   Measuring the data: statistics, graphical visualisations

Once I had a complete, clean set of data, I needed to find the right tools to measure it using quantitative (and sometimes qualitative) methods. These tools need to be reliable and valid, as stated by Mellinger & Hanson:

> A measurement tool exhibits *reliability* when it provides stable and consistent results in repeated use. An instrument exhibits *validity* when it can accurately reflect the construct of interest. In order for measurements to provide meaningful raw data for statistical analysis in a research study, they need to be both reliable and valid. (Mellinger & Hanson 2017: 28)

One of the most reliable, valid and productive ways to convey an image of AVT research is using bibliometrics to analyse research publications and then extract conclusions:

Bibliometrics […] can be defined as the science of measuring and analysing academic publications and scholarly communication. Bibliometric analyses have proved to be a valuable instrument for studying the evolution, dynamics and trends of academic disciplines, employing methods such as counting publications or citations. (Grbić 2013: 20)

This study only includes basic bibliometric analyses and calculations using descriptive statistics, such as publications per year or per decade; most and least represented topics; number of pages per dissertation; most productive universities and countries; types of dissertations; most used languages; open/closed access; academic network analysis; authors' and supervisors' gender, and online presence, frequencies and measures of central tendency.

In the future, I plan to complete them by means of other tools and metrics (citations and co-citations, field-weighted citation impact, bibliographic coupling, impact indicators, webometrics, altmetrics, Eigenfactor, SNIP, etc.), which will enable me to describe and quantify the impact and relevance of scientific research in this field from the point of view of impact, internet interactions, number of downloads and other indicators.

To present and visualise the results of those calculations and measurements, and after testing several software packages, I decided to use Microsoft Excel and the open source software Cytoscape, originally meant for biology.

4. Results

The results obtained in this study can be classified in two main sections: those related to the corpus of doctoral dissertations on AVT subjects and its coverage, and those related to the bibliometric measurements carried out on that corpus.

4.1. Corpus

The table below gives an overview of the corpus of doctoral dissertations, their authors and their supervisors.

Table 1. Number of doctoral dissertations, authors and supervisors

Dissertations				Authors	Supervisors
330				330	432
Supervised		Unsupervised	No data	Authors who later became supervisors	
317		1	12	22	
No. of supervisors/diss.					
One	Two	Three			
205	108	4			

Source: BITRA-TAV.

There are 330 authors and the same number of dissertations —obviously, there is no co-authorship here—, 317 of which (96,06%) have at least one known supervisor/advisor. One Russian dissertation was not required to have any supervisor[3] and 12 theses had no information about their supervision. There are 432 supervisors in

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[3]   As explained by the author and later verified (Zaparucha et al. 2010), there are two doctorate levels in Russia and other former USSR republics: *Kandidat Nauk* or Candidate of Sciences (equivalent to a PhD) and *Doktor Nauk* or Doctor of Sciences (post-doctoral level usually without supervision, similar to *Habilitation* in Germany and Poland).

total (102 more than authors), because some dissertations have two or three supervisors (sometimes called co-supervisors). Of all 330 authors, 22 (6.67%) furthered their academic careers and later became supervisors of other AVT dissertations. There are 205 dissertations (64.67%) with one supervisor; 108 (34.07%) with two and 4 (1.26%) with three, so the average is 1.37 supervisors per thesis.

Compared with all dissertations included in BITRA (3,207 as of November 2017), AVT represents 10.29%, far, for instance, from the 1,082 (33.74%) theses related to literature, but very close to interpreting (303 = 10.29%) and scientific and technical translation (388 = 12.10%).

Figure 3. Evolution of theses in main fields of translation studies.
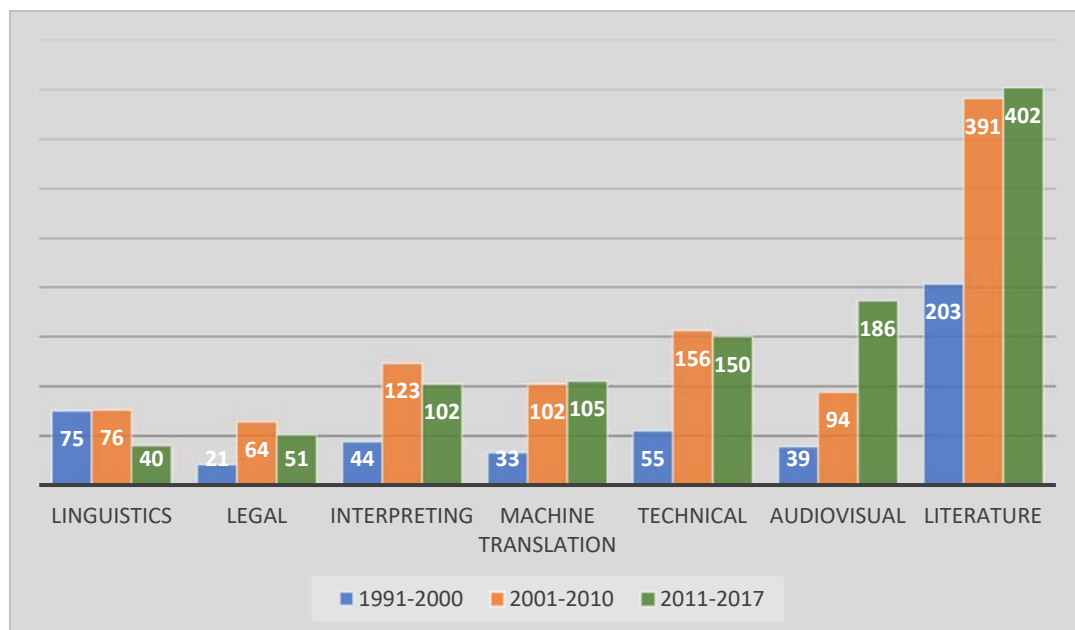
Source: BITRA.

The prevalence of literature-related PhD theses in TS studies (even nowadays) is explained by the strong presence of a traditional humanistic focus, but the gap with other more technical-related fields seems to be decreasing with time. While dissertations

in all the other fields have decreased considerably or maintained their number in the last seven years, in AVT there has been a spectacular growth, almost doubling the previous number.

4.2.   Coverage

Both the online version of the database (BITRA) and the local one (BITRA-TAV) contain 4,048 documents related to AVT, 330 of which are doctoral dissertations. One of the many advantages of this database in terms of search parameters and flexibility is that one can search for subjects (keywords) in one language and they are automatically searched for in other languages. Another advantage is the possibility of searching by type of document («dissertation» in this case), which makes it easy to find the documents needed for this study. Unfortunately, other databases only include one of these options, not both.

In order to test the suitability and appropriateness of BITRA for this analysis, I decided to compare the results obtained in several search tasks against the results of other databases, namely TSB[4], Web of Science (WoS), Scopus, Google Scholar and Microsoft Academic, even though the only one that is fully comparable is TSB, as it is also a holistic database about translation and interpreting studies. These are the results:

Table 2. Search results in different databases.

Database	Search string	Field	No. of documents
BITRA	audiovisual	Subject & keyword	4,048
TSB	audiovisual	Keyword	779
WoS	audiovisual AND translation	Topic	281

4   Translation Studies Bibliography (Gambier & Doorslaer 2004-2017).

Scopus	audiovisual AND translation	KEY	209
Google Scholar	«audiovisual translation»	general	5,740
Microsoft Academic	audiovisual translation	general	360
BITRA	dissertation	Type	3,207
TSB	dissertation	N/A	N/A
WoS	N/A	document type	N/A
Scopus	dissertation	DOCTYPE	N/A
Google Scholar	dissertation	N/A	N/A
Microsoft Academic	dissertation	N/A	N/A

Source: BITRA-TAV.

TSB seems to exclude some relevant results from the search, that would otherwise be available with other keywords («accessibility», for example). Google Scholar does not allow searches using keywords, but using quotation marks to limit the search results in irrelevant documents being included (outside translation studies) or relevant ones being excluded (for example in languages other than English, unless a complex search is done). Microsoft Academic does not even allow the use of Boolean operators. WoS (Web of Science) does not include «dissertation» in its document type search facility, and Scopus does not contain dissertations. For all these reasons, BITRA is definitely the best source of data in this case.
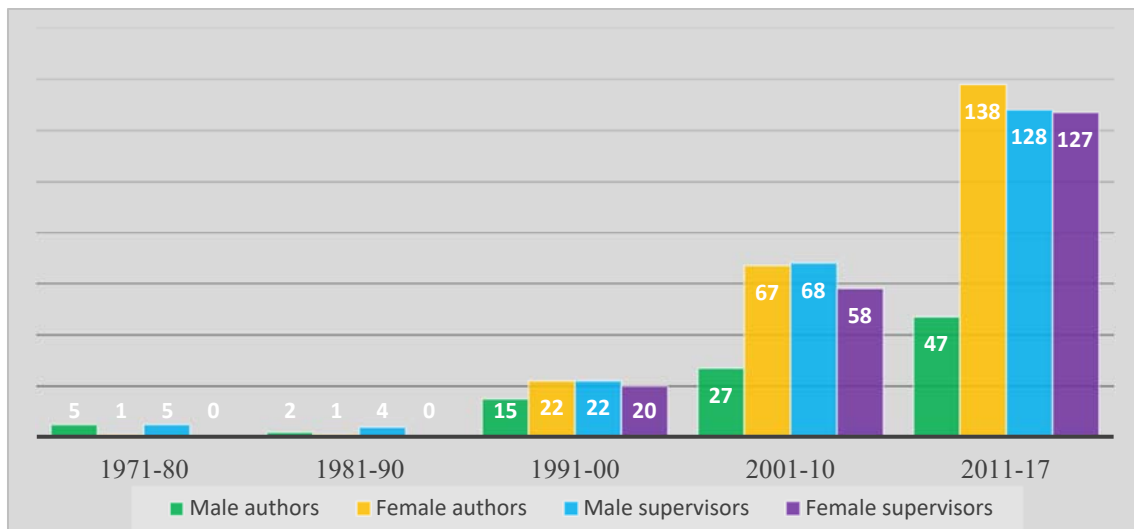
4.3. Bibliometric analyses

4.3.1. Gender

Gender was identified for 326 authors (98.79%) and for all 432 supervisors. There is an overwhelming majority of female authors of AVT dissertations (almost 70%) and the proportion of women who later supervised other theses is very similar (63.64%).

Figure 4. Evolution of authors' and supervisors' gender.

	1971-80	1981-90	1991-00	2001-10	2011-17
Male authors	5	2	15	27	47
Female authors	1	1	22	67	138
Male supervisors	5	4	22	68	128
Female supervisors	0	0	20	58	127

Source: BITRA-TAV.

In contrast, male supervisors have always outnumbered their female counterparts (53% against 47%), in line with the differences present in other areas of society. This trend seems to be changing, though, as numbers show some progress related to gender equality and women's empowerment, to which AVT studies has always been sensitive.

4.3.2. Online researcher networks

The use of online researcher networks presents the following information:

Figure 5. Use of online researcher networks.
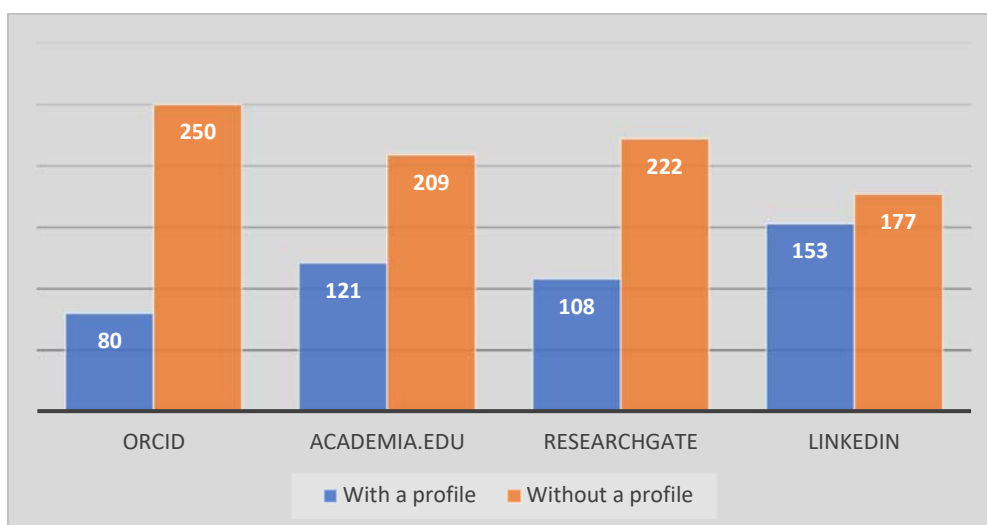
AVT theses academics do not seem to be interested in researcher networks yet, as only a small percentage has a profile in ORCID (24.24%), Academia.edu (36.67%), ResearchGate (32.73%) or LinkedIn (46.36%)[5], with an average use of 35%. This is in contrast with the overall inclination towards everything modern among AVT authors, and may be due to a lack of information or to their youth and therefore few data to fill in.

These scholarly or professional social networks seem to be useful for sharing ideas, concepts and questions with other academics, and also for uploading files, data, results and even theses or articles in open access. It is also a valuable source for altmetric calculations.

There is no information about the evolution of the use of these websites in AVT, but it would be advisable for authors to have at least a profile in ORCID, which is starting to function as a standard and required by many official institutions.

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[5] Being aware that some of these services automatically create empty profiles for researchers, I have only counted those profiles containing data.

4.3.3. Year of publication/archiving

The earliest AVT dissertation that I have been able to record is Hesse-Quack (1967). The following is a chart with the number of dissertations per decade.

Figure 6. Number of dissertations per decade.
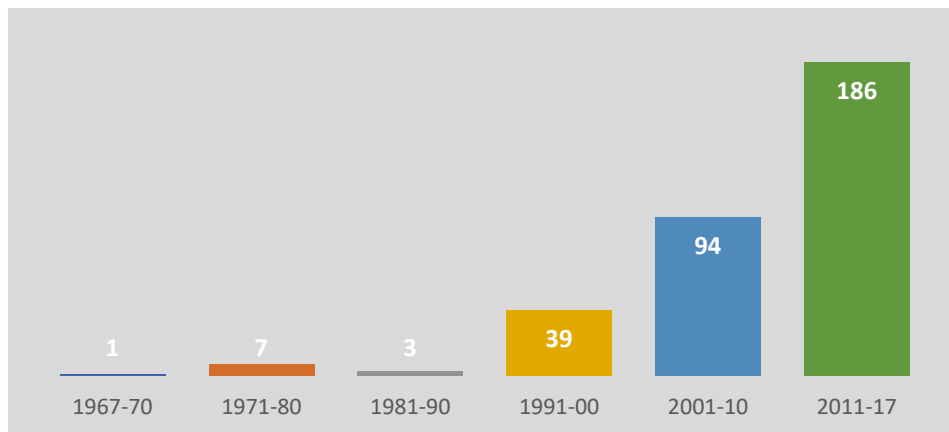
Source: BITRA-TAV.

The 2010s (actually seven years) have clearly provided the highest number of dissertations, 186 (56.36% of the total, almost doubling the previous decade) which reflects the exponential growth in AVT studies in general, unlike other fields in TS. The year with the highest number of dissertations was 2016 (36), followed by 2015 (34) and 2013 (32).

The number of theses in the 1970s, higher than in the 1980s, is anomalous, because it does not follow the global evolution of the subdiscipline. Six theses in the 1970s were about captions for the deaf and teaching, from universities in the United States. At least one of them had some official support —the grants received by Fischer's (1971) supervisor, Dr. Robert E. Stepp, at the Midwest Regional Media Center for the Deaf—. Other factors influencing this situation might be the introduction of captions in

1972 by the TV channel WGBH (Various Authors WGBH); the new Rehabilitation Act in 1973 (protection and services for people with disabilities); and Public Law 94-142 (Education of All Handicapped Children) in 1975. The short number of dissertations in the 1980s, however, may be due to discontinuation of those funds or to some error in document collection, which will be solved in future studies.

4.3.4. Subjects

There are 245 unique subjects (including keywords and free text) that appear 1,544 times in BITRA-TAV, which means that most of them appear together with other subjects, with an average of six subjects per thesis. An analysis of the most productive combinations of two subjects shows the logical pairs («dubbing» + «cinema», for example).

Figure 7. Main subjects.
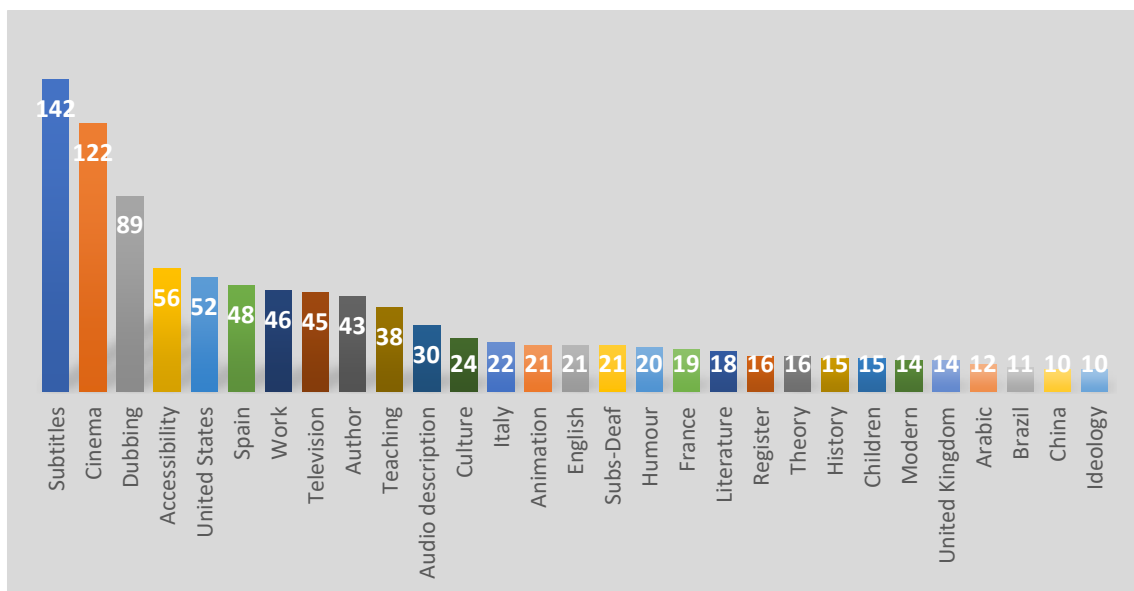
Source: BITRA-TAV.

These are the 30 most frequent subjects in AVT dissertations, which represent a total frequency of 70% in BITRA-TAV. This frequency and order are very similar to the frequency and order of subjects within the whole BITRA-TAV database (i.e. not counting only theses), which means that the interests within the subdiscipline are adequately translated into doctoral dissertations.

«Subtitles» and «dubbing» constitute the core of AVT (with «cinema» in the middle), related to 142 and 89 theses, respectively. «Accessibility» (56), «television» (45) (which appears as a possible future substitute for «cinema», following viewing habits), «teaching» (38) and «audio description» (30) appear as uptrends in the field.

«United States» seems to be related to its hegemonic role in audiovisual products, while «Spain» probably reflects the extraordinary strength of TS in this country (especially in AVT). «Work» and «author» always appear with a subject for a title (film, book) and for a name (director, writer), respectively, and represent the traditional —and somewhat clichéd— method of analysing case studies.

Some subjects («phraseology», «puns», «gender», «fiction», «terminology», «colonialism», «surtitles», «voice-over», «respeaking») are clearly understudied and might be good candidates for future theses, for example with a combination of «puns» and «fiction» to analyse the difficulties of translating all the irony and puns that appear in superhero films.

Even though some PhD theses have addressed specific research issues in AVT, I have not been able to find any related to bibliographic and/or bibliometric analyses of AVT studies, so mine will probably be the first one.

Trends are clear in the last two decades:

Figure 8. Evolution of main subjects between 1991 and 2017.
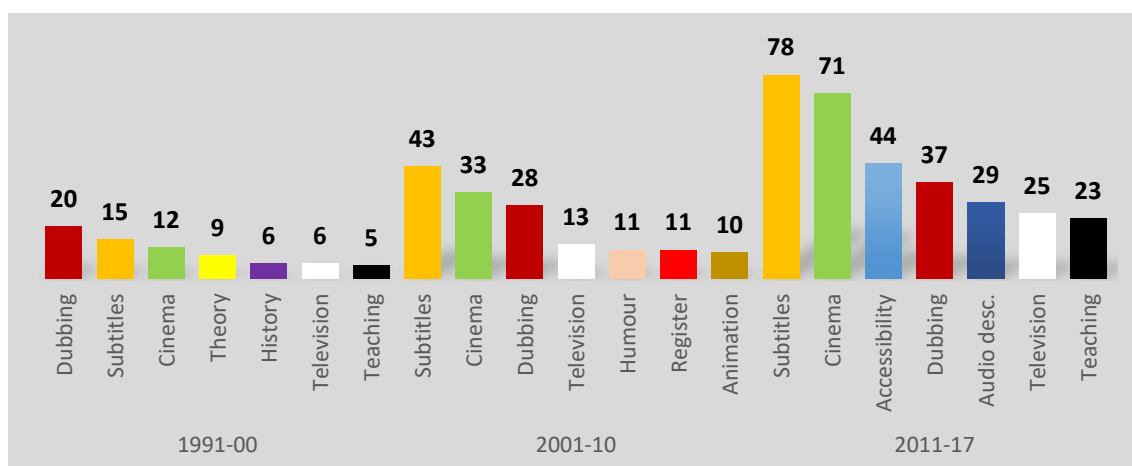
Source: BITRA-TAV.

It is interesting to see how in the last two decades «dubbing» was overtaken by «subtitles» and «cinema» in the 2000s, and then by «accessibility» in the 2010s, probably as more non-dubbing countries entered the AVT research world. «Theory» was a popular trend in the 1990s, pointing out to all the milestones in AVT research of that period, and in the 2000s new subjects came in («humour», «register», «animation»), showing an interest in topic innovation and also in the Marx Brothers and *The Simpsons*. Finally, the 2010s seem to mark the decade giving way to «accessibility» (including «audio description» and «captions for the deaf»), with a series of strong research groups in Spain (mainly at the Universitat Autónoma de Barcelona).

Another interesting way of analysing subjects is from the perspective of the university of origin of theses. What we get is a «house brand» that identifies the type of AVT theses research that takes place in that university, although it would also be advisable to analyse departments and research groups.

Table 3. Subjects per university and frequency.

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UNIV.	SUBJECT	FREQ.	UNIV.	SUBJECT	FREQ.
HW	Interpreting	2	UJI	Dubbing	8
	Register	2		Subtitles	5
	Subtitles	2		Television	4
KUL	Cinema	2		Children	3
	History	2		Accessibility	2
	Polysystems	2		Animation	2
	Theory	2		Cinema	2
UA	Cinema	2		Teaching	2
	Dubbing	2		Theory	2
	Humour	2	UNIBO	Cinema	3
UAB	Subtitles	13		Dubbing	3
	Accessibility	12		Profession	2
	Audio descr.	7	UPF	Dubbing	3
	Cinema	7		History	2
	Subs-Deaf	4		Literature	2
	Dubbing	3		Register	2
	Register	3		Subtitles	2
	Automatic	2		Television	2
	Culture	2	UPO	Accessibility	3
	Voice-over	2		Audio descr.	3
UFSC	Teaching	4		Cinema	2
	Corpus	3		Teaching	2
	Cinema	2	UVA	Subtitles	2
	Subtitles	2		Cinema	5
UGR	Cinema	4		Dubbing	2
	Dubbing	4		Subtitles	2
	Accessibility	2	UVI	Dubbing	3
	Subtitles	2		Animation	2

Source: BITRA-TAV

The frequency of subjects in dissertations in some universities gives us a hint on their strong research areas, such as «accessibility» at UAB and UPO, «history» and «theory» at KUL, «teaching» at UFSC or «cinema» at UVA and UGR, apart from «subtitles» and «dubbing».

As for frequency per country, only Germany as a dubbing country has more theses related to «dubbing» (none related to «subtitles», in fact); Italy has the same number for «dubbing» and «subtitles»; but in Spain and France «subtitles» has already overtaken «dubbing», although very slightly, which probably shows a new trend, as more and more people are using subtitles in these countries. Brazil is definitely

interested in «authors», «works» and «literature», probably in the line of traditional TS. In Spain «accessibility», «audio description» and «captions for the deaf» are gaining strength, as in the United Kingdom, while «surtitling», «voice over» and «amateur» do not seem so interesting.

4.3.5. Number of pages per thesis, per year and type of dissertation

The number of pages of a doctoral dissertation usually provides information about the way scholars present academic research (succinct writing or many annexes, for example) from different countries in different periods. Sometimes a number below the average may raise suspicion about quality or completeness.

More than half (184 = 55.76%) of AVT PhD theses included in BITRA-TAV have between 200 and 400 pages (with a total average of 358.20); there are four theses with over 1,000 pages (the maximum being 1,329), and six with less than 100 (the minimum, 57). The length, however, depends greatly on the language and type of dissertation.

Figure 9. Average number of pages per language.
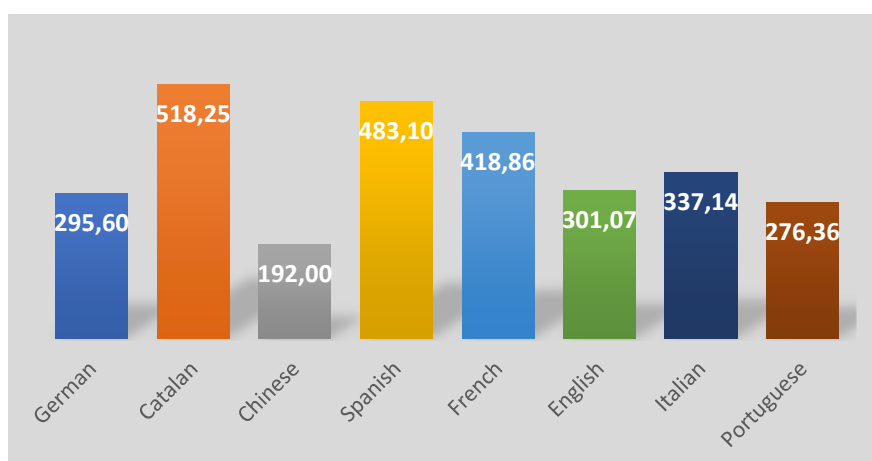
Source: BITRA-TAV.

Dissertations in Spanish, Catalan and French are the longest ones and Chinese theses, the shortest. Indeed, Romance languages usually take more words and space than Germanic and Asian languages, but there may also be some cultural factors, such as a taste for verbiage. The average page count has gone down from 500 in the 2000s to 350 in the last 10-12 years. Regarding the type or format of the theses, PhD theses are by far the most common type (227 theses identified as such, including «doctorado», «doutorado», «dottorato»). There are seven «compendium» dissertations (i.e. previously published articles collected as a thesis) and two EdDs («Doctor of Education»), which tend to be much shorter.

4.3.6. Affiliation (universities, countries) of authors and supervisors

More than one third of AVT PhD authors' universities are based in Spain (112 = 33.94%), followed by the United Kingdom (56 = 16.97%). If we include Brazil (33 = 10.00%), Italy (26 = 7.88%) and the United States (23 = 6.97%), we already cover more than three quarters (75.76%) of the corpus, which shows a clear concentration in countries with a long tradition in AVT and TS studies.

To correct the possible geographical bias of BITRA-TAV in relation to its origin (Spain) and its Western context, I have done searches on many national theses repositories using strings in different languages, so finally I have concluded that there is an extraordinary interest for this subdiscipline in Spain in terms of doctoral dissertations.

Of the total of 152 universities in terms of authors' affiliation, the largest share is held by two Spanish universities —the Universitat Autònoma de Barcelona (UAB) (22 theses) and the Universitat Jaume I (UJI) (13)—, followed by the Brazilian Universidade Federal de Santa Catarina (UFSC) (9), and the Spanish Universitat

Pompeu Fabra (UPF) (8). The Universidad de Alicante (UA), where my own dissertation will be defended and where BITRA is hosted, has three theses on AVT: Martínez (2008), Botella (2010) and Calvo-Ferrer (2012); the first two about dubbing and humour and the third one about videogames.

The situation is quite similar in terms of supervisors' affiliation.

Figure 10. Supervisors' affiliation (more than four theses per university).
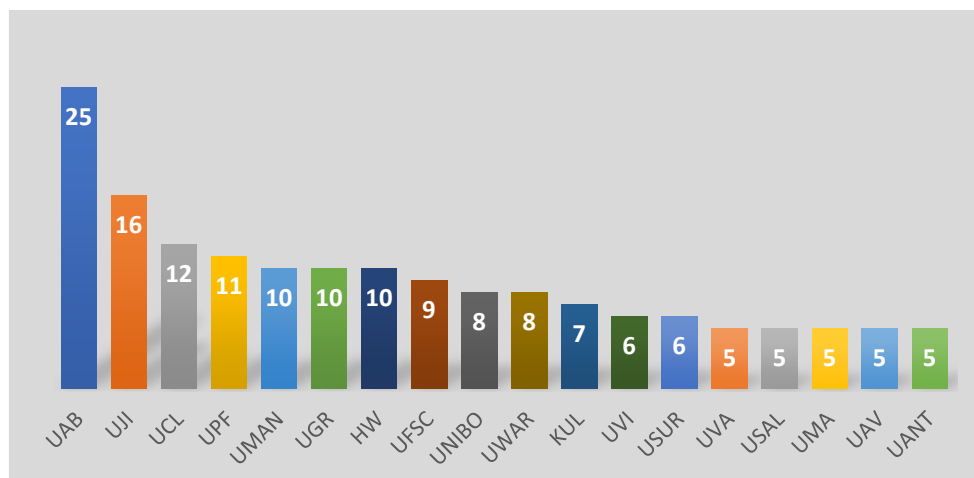
Source: BITRA-TAV[6].

There is a total of 161 universities of origin of supervisors. Again, the UAB also provides the highest number (25), followed by the UJI (16), the University College

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[6] UAB = Universitat Autònoma de Barcelona; UJI = Universitat Jaume I; UCL = University College London; UPF = Universitat Pompeu Fabra; UMAN = University of Manchester; UGR = Universidad de Granada; HW = Heriot-Watt University; UFSC = Universidade Federal de Santa Catarina; UNIBO = Università di Bologna; UWAR = University of Warwick; KUL = Katholieke Universiteit Leuven; UVI = Universidade de Vigo; USUR = University of Surrey; UVA = Universidad de Valladolid; USAL = Universidad de Salamanca; UMA = Universidad de Málaga; UAV = Universidade de Aveiro; UANT = Universiteit Antwerpen.

London (UCL) (12) and the UPF (11). Interestingly, AVT research efforts at the UCL were started by a Spanish researcher (Díaz-Cintas), who did his thesis at the Universitat de València, and some thesis authors at UCL are of Spanish origin.

As with authors' affiliation, there is a clear concentration of supervisors from universities in Spain, and also the rest of Europe and Brazil.

4.3.7. Academic networks of authors and supervisors

There are on average 1.37 supervisors per thesis: five theses were supervised by three supervisors, 106 by two, 205 by one supervisor and one Russian thesis had no supervision. There is no information about the supervision of 13 theses.

On the other hand, the most productive supervisors (i.e. the ones supervising the highest number of theses) are the following:

Figure 11. Most productive supervisors.
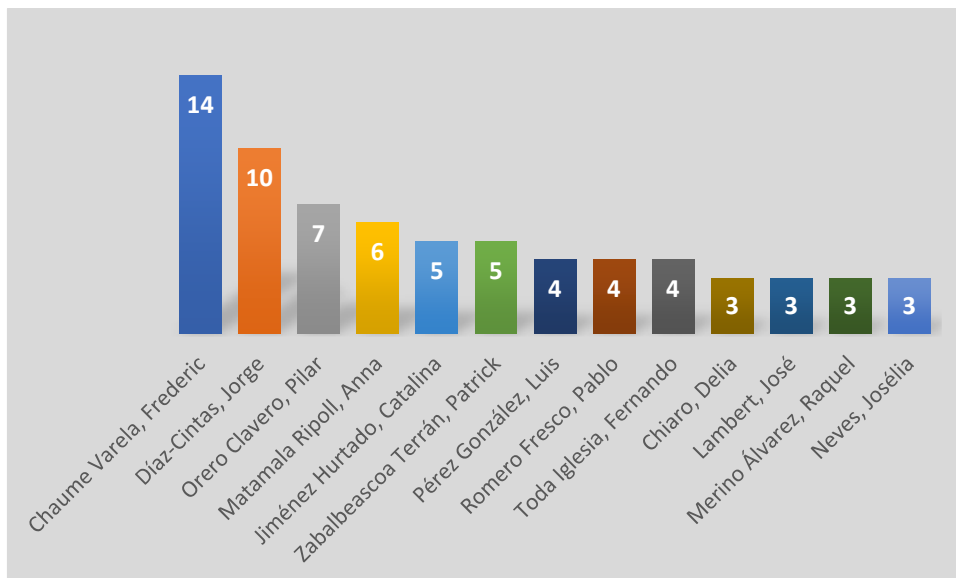
Source: BITRA-TAV.

Chaume has supervised 14 theses; Díaz-Cintas, 10; Orero, 7; Matamala, 6; Jiménez, 5, and Zabalbeascoa, also 5. Many have supervised theses not only in their own universities, but also in others, thus creating a network with branches in different countries.

Cytoscape shows a very low clustering coefficient for the whole network, but, removing all isolated theses —with only one author-supervisor relationship—, we get connections with three or more nodes:

Figure 12. Example of simple relationships between authors and supervisors.

Source: BITRA-TAV.

In this example we can see two relationships, Sanderson supervising both Martínez's and Botella's theses, and Belda supervising Calvo-Ferrer's, all of them belonging to the Universidad de Alicante.

Other connections are more complex and form subnetworks, which can be analysed using several bibliometric measures or indicators, such as the «betweenness centrality».

Even though this concept is usually applied to citations and co-citations (which I will be dealing with in future analyses), it may also represent the degree of involvement of an entity within a structure, as Castro-Prieto & Olvera explain:

El concepto de centralidad revela que cuanto mayor sea el grado de implicación de una entidad dentro de una estructura, mayor será el número de relaciones que establezca en relación a los demás. […]

c) Elementos intermediarios: […] esta medida subraya el poder que tienen determinados nodos de conectar recursos que de otra forma quedarían desconectados. (Castro-Prieto & Olvera 2003)

In the case of the affiliation network based on BITRA-TAV, the highest values of betweenness centrality go to Díaz-Cintas, Chaume, Ranzato, Orero, Arnáiz and Romero. The first three form the following subnetwork, together with Neves and De Marco:

Figure 13. Subnetwork with the highest degree of betweenness centrality.

Source: BITRA-TAV.

Most universities (129 = 70.88%) are isolated from the rest in terms of thesis authoring and supervision, but the others (53 = 29.12%) are very interconnected. In fact, the most complex one connects 37 universities (20.33%). Although it is not possible to distinguish authors and supervisors at this scale in figure 14, we can nevertheless appreciate the complexity of the connections by visualising part of this subnetwork as an example.

Figure 14. Highest degree of betweenness centrality in universities.
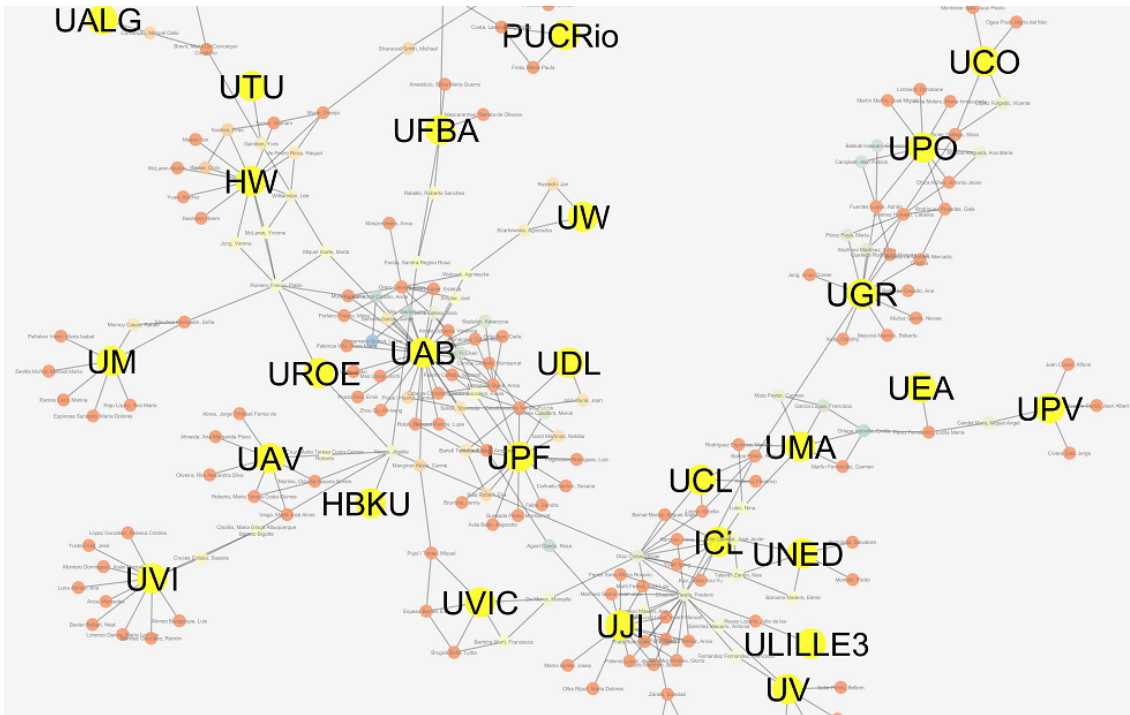
Source: BITRA-TAV.

This means that almost one third of universities in this study are somehow connected to other universities through AVT authors and supervisors, quite often through co-supervision (and most likely with common research projects). Most of them are Spanish universities (UAB, UM, UVI, UJI, UVIC, UV, UNED, UMA, UGR, UPO, UPV, UCO, UEA, UDL)[7], but they are connected to British (HW, ICL, UROE),

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[7] UM = Universidad de Murcia; UVIC = Universitat de Vic; UV = Universitat de València; UNED = Universidad Nacional de Educación a Distancia; UPO = Universidad Pablo de Olavide; UPV = Universitat Politècnica de València; UCO = Universidad de Córdoba; UEA = Universidad Europea del Atlántico; UDL = Universitat de Lleida; ICL = Imperial College London; UALG = Universidade do Algarve; UFBA = Universidade Federal da Bahia; PUCRio = Pontifícia Universidade Católica do Rio de Janeiro; ULILLE3 = Université Charles-de-Gaulle

Portuguese (UALG, UAV), Brazilian (UFBA, PUCRio), French (ULILLE3), Finnish (UTU) and Polish (UW) universities. The main nodes connecting them are researchers Díaz-Cintas, Chaume, Neves and Romero, who, by the way, are among the most productive supervisors and the ones getting the highest number of citations[8].

4.3.8. Languages

Almost half of the languages used in the dissertations (159 = 48.18%) are written in English, followed by Spanish (23.33%), Portuguese (10.61%), French (5.45%), Italian (4.85%) and Catalan (3,64%). English is also used in countries where it is not an official language, such as Spain, Brazil, Italy or Belgium, although some universities and supervisors promote the use of local language(s).

4.3.9. Access mode

An essential aspect for doctoral dissertations, and not only those in the field of AVT, is whether they may be easily found and accessed on the internet or not, because, as we have seen, they contain large amounts of helpful research data. Fortunately, most AVT dissertations (64.55% of the total) are open-access, and Spain provides the highest number (24.55%), followed by the United Kingdom (10.91%), Brazil (8.18%), Italy (4.24%) and the United States (3.64%). Unavailable, restricted or embargoed theses amount to 117.
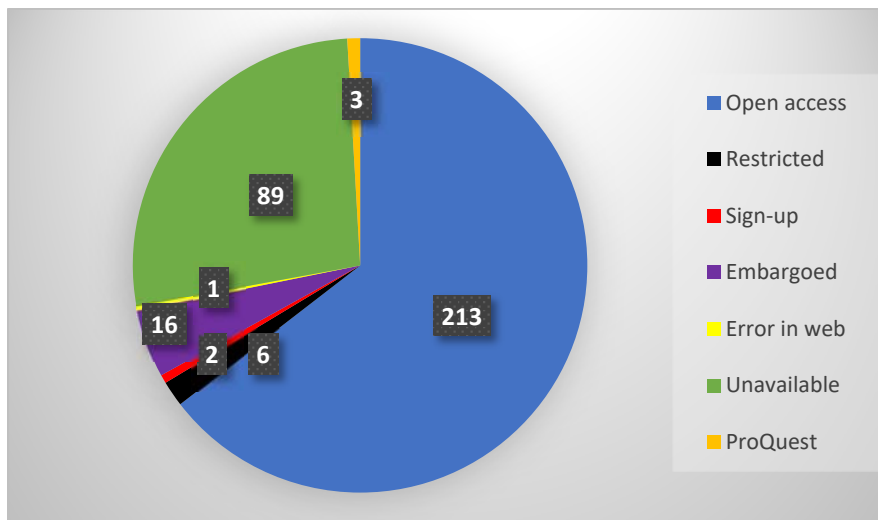

– Université Lille III; UTU = Turun yliopisto (University of Turku); UW = Uniwersytet Warszawski (University of Warsaw).

[8]   To be analysed in future studies.

Figure 15. Number of dissertations per access mode.

In several countries, though, open access does not seem to be the prevailing option yet: Austria, China, France and Germany.

It is important to note that the year of publication or archiving of a thesis is usually not the same as the year when it was made open-access, due to university policies, author's permissions, embargoes, etc., and so analysing its evolution is difficult. Some dissertations written before the age of the internet are now being scanned and made open-access by universities and libraries, but it takes time, patience… and money. That is the case of Cambridge University with Stephen Hawking's thesis, for example, or the many old documents now hosted at archive.org.

Figure 16. Evolution of compared total and open-access theses.
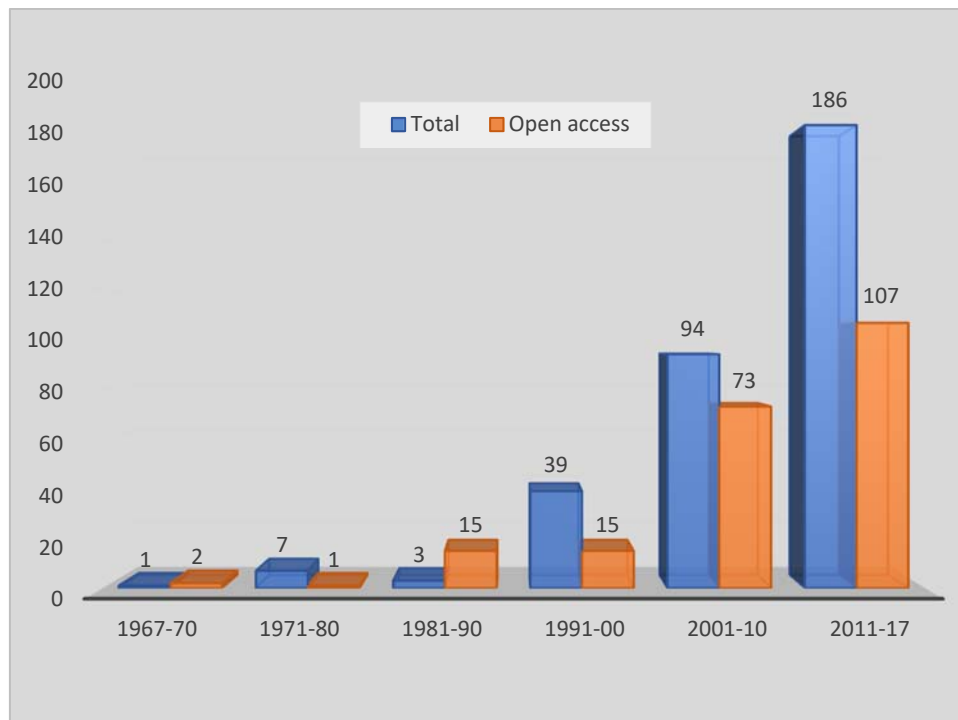
Source: BITRA-TAV.

Since the birth of the internet and the World Wide Web at the end of the 1980s, the percentage of open-access scientific publications against the total has grown steadily in the last two decades, which is a very good sign for scientific research. However, some authors are still reluctant to share their theses after defending them, because they usually plan to publish parts of it or the whole privately. On the other hand, many universities encourage their students and researchers to go open-access, providing repositories and facilitating copyright management.

5. Conclusions

This is the first comprehensive bibliometric study of AVT-related doctoral dissertations and, as such, it leaves new findings, revealing data and many open areas still to explore. The main objective —to analyse the evolution and current state of the

art of doctoral dissertations in this subdiscipline in order to draw a map of the field—has been successfully met.

The international database BITRA, which was used as the main source of data, together with online databases and repositories, was also updated with new entries.

Several computerised methods for data extraction, editing, analysis and visualisation have been devised or adapted from existing software, mainly using Microsoft Excel, EmEditor, SPSS and Cytoscape.

The results include data, analysis and evolution (last 40 years) of 330 PhD theses in 16 languages, 330 authors, 432 supervisors and 159 universities from 27 countries. The average number of pages is now 350, down from the 500 of the 2000s; the minimum was 57 and the maximum, 1,329. Most AVT dissertations (64.55%) are open-access, 24.55% of them from Spain, but only an average of 35% of authors use online researcher or professional networks (mostly LinkedIn), so there is still some awareness-raising to do in this respect, mainly about ORCID. Even though almost 70% of authors are female, female supervisors only account for 47%. However, the trend is to reduce this gap.

Of 245 subjects (keywords), the most frequent ones have been «subtitles», «dubbing» and «cinema» for many years, although others are gaining strength («accessibility», «television», «teaching» and «audio description»). Some universities have strong research groups related to subjects: accessibility (UAB, UPO), history and theory (KUL), teaching (UFSC) or cinema (UVA, UGR). Some understudied subjects («phraseology», «puns», «gender», «fiction», «terminology», «colonialism», «surtitles», «voice-over», «respeaking») might be good candidates for future theses.

English is the language of almost half of the theses, so it is still preferred as the language of science in this field, even though some universities promote local languages.

Spain is by far the main centre of production and supervision of AVT theses (Universitat Autònoma de Barcelona, Universitat Jaume I, Universitat Pompeu Fabra, Universidad de Granada, Universidade de Vigo, Universidad de Valladolid), followed by the United Kingdom (University of Manchester, Heriot-Watt University, University College London, with some Spanish researchers working there), Brazil (Universidade Federal de Santa Catarina), Italy (Università di Bologna) and the United States (University of California). Many of them (up to 37 universities) are interconnected through a subnetwork of authors and supervisors.

There is an average of 1.37 supervisors per thesis, the most productive ones being Chaume (14) and Díaz-Cintas (10) —both form a subnetwork with the highest degree of betweenness centrality—, Orero (7), Matamala (6), Jiménez (5) and Zabalbeascoa (5).

For my PhD thesis I plan to further analyse these and other data and provide a full description of the subdiscipline using other tools and metrics (citations and co-citations, field-weighted citation impact, bibliographic coupling, impact indicators, webometrics, altmetrics, Eigenfactor, SNIP, frequency of keywords in titles and abstracts), as bibliometric and webometric impact is also a valuable (and controversial) measure of scientific production.

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